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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|----------------------|---------------------|------------------|
| 10/526,523 | 03/01/2005 | Chung-Kuan Cheng | 0321.67590 | 5310 |
| 24978 | 7590 | 03/22/2007 | EXAMINER | |
| GREER, BURNS & CRAIN | | | NGUYEN, THINH T | |
| 300 S WACKER DR | | | | |
| 25TH FLOOR | | | ART UNIT | PAPER NUMBER |
| CHICAGO, IL 60606 | | | 2818 | |
| SHORTENED STATUTORY PERIOD OF RESPONSE | | MAIL DATE | DELIVERY MODE | |
| 3 MONTHS | | 03/22/2007 | PAPER | |

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

| | | |
|------------------------------|-----------------------------|------------------|
| Office Action Summary | Application No. | Applicant(s) |
| | 10/526,523 | CHENG ET AL. |
| | Examiner Thinh T. Nguyen | Art Unit 2818 |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 12 January 2007.
 2a) This action is **FINAL**. 2b) This action is non-final.
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-23 is/are pending in the application.
 4a) Of the above claim(s) 9-18 and 20-23 is/are withdrawn from consideration.
 5) Claim(s) _____ is/are allowed.
 6) Claim(s) 1-3 and 5-8 is/are rejected.
 7) Claim(s) 4 and 19 is/are objected to.
 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.
 10) The drawing(s) filed on 03 September 2003 is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) Notice of References Cited (PTO-892)
 2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
 3) Information Disclosure Statement(s) (PTO/SB/08)
 Paper No(s)/Mail Date 3/1/05

4) Interview Summary (PTO-413)
 Paper No(s)/Mail Date. _____.
 5) Notice of Informal Patent Application
 6) Other: _____

DETAILED OFFICE ACTION

1. Applicant's election of claims 1-8 and for prosecution without traverse in the communication with the Office on January 12th 2007 is acknowledged.

Specification

2. The specification has been checked to the extent necessary to determine the presence of all possible minor errors. However, the applicant cooperation is requested in correcting any errors of which the applicant may become aware in the specification.

Drawings

3. The drawing are objected to because Fig. 19A,19B,19C,Fig 25A ,25B,25C,fig 27B,FIG 29A,FIG 36A are not designated by a legend such as " prior art ". The legend is. necessary in order to clarify what applicant 's invention is (see MPEP paragraph 608.02).

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102(b) that form the basis for the rejections under this section made in this office action.

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1,2 are rejected under 35 U.S.C. 102(b) as being anticipated by Patent Paper RD 339051 or Rostoker et al. (US patent 5,742,086)

With regard to claim 1; Patent Paper RD 339051 discloses a chip comprising: an array of hexagonal cells; a plurality of interconnects including Y's connecting the cells in clusters 106 of three cells each wherein the cells in the clusters are interconnected.

With regard to claim 2, Patent Paper RD 339051 discloses a chip wherein the Y connecting each cluster has a node and three interconnects connecting the node to respective ones of the cells within a cluster;

Similarly , with regard to claim 1, Rostoker 086 (fig 75) discloses a chip comprising: an array of hexagonal cells; a plurality of interconnects including Y's connecting the cells in clusters 106 of three cells each wherein the cells in the clusters are interconnected.

Also with regard to claim 2, Rostoker 086 (fig 75) discloses a chip wherein the Y connecting each cluster has a node and three interconnects connecting the node to respective ones of the cells within a cluster;

6. Claims 3,7,8 are rejected under 35 U.S.C. 102(b) as being anticipated by Rostoker et al. (US patent 5,742,086)

With regard to claim 3, Rostoker 086, discloses (in the abstract and thorough his disclosures) that his array can be multilevel.

With regard to claim 7 and 8 Rostoker 086, discloses (in fig 75) wherein each of the clusters comprises three cells arranged and routed in three symmetrical directions and wherein the cells of each cluster are arranged and routed at directions of 0°, 60°, and 120° with respect to the node.

Claim Rejections - 35 USC § 103

7. The following is a quotation of U.S.C. 103(a) which form the basis for all obviousness rejections set forth in this office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 5 ,6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Patent Paper RD 339051 in view of Terasawa (Japanese Patent JP357143844A)

With regard to claim 5, as set forth in the rejection of claim 1, Patent RD 339051 discloses all the invention except specifically discloses the polygon shape of the LSI chip. Terasawa, however, discloses(in the abstract) that the chip can be hexagonal.

It would have been obvious to one of ordinary skill in the art the time the invention was made to incorporate this feature as taught by Terasawa into Patent RD 339051 and come up with the invention of claim 5 in order to produce more chips per wafer as taught by Terasawa in his abstract.

With regard to claim 6 , the combined disclosures by Patent RD 339051 and Terasawa discloses all the invention except for the shape wherein the polygon is symmetrical to directions of the interconnect.

The examiner, however, take official notice that this feature is obvious at the time the invention was made since this shape can be obtained through routine optimization with many optimization program.

ALLOWABLE SUBJECT MATTER

8. Claims 4 and 19 objected as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all the limitations of the base claim and any intervening claim.

Claim 4 and 19 are considered allowable since the prior fails to teach the additional limitations:

-- "each of the Y's on a particular level is oriented in a direction that is rotated by 90° from the Y's on a next lower level and is rotated by 90° from the Y's on a next higher level."-- in combination with all other limitations of claim 4.

9. When responding to the office action, Applicants are advised to provide the examiner with the line numbers and the page numbers in the application and/or references cited to assist the examiner to locate the appropriate paragraphs.

10. A shortened statutory period for response to this action is set to expire 3 (three) months and 0 (zero) day from the day of this letter. Failure to respond within the period for response will cause the application to be abandoned (see M.P.E.P. 710.02(b)).

CONCLUSION

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thinh T Nguyen whose telephone number is 571-272-1790. The examiner can normally be reached on Monday-Friday 9:30am-6: 30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Smith can be reached at 571-272-1907.

The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval [PAIR] system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Thinh T. Nguyen *TTN*

Art Unit 2818

Andy Nguyen
Andy Nguyen
Primary Examiner